incumbent providers of substitute services to become more efficient; to become more innovative; to diversify and improve current offerings, and to lower prices, as means of meeting the challenge of rivals and ensuring continued long term growth and viablilty.

Over the years, the Commission has received and evaluated most conceivable arguments -- generally from incumbents with market power -- in support of the proposition that new entry and increased market competition is "bad"; or "wasteful""; or "destructive"; or otherwise counter to the public's best interest. These arguments have been variously grounded in contentions about "cream-skimming", "cut-throat" or "destructive" competition, market "fragmentation" "siphoning", or, indeed, "stealing" customers and market share.

The Commission has heard arguments about competitive market failure stemming from "natural" monopoly, externalities, transactions costs, the desirability of "social cross-subsidy", and from other sources. But, with very few exceptions, and for a rapidly narrowing list of market circumstances, the Commission has spurned these generally self-serving claims by market-powered incumbents. Rather than prohibiting the commercial exploitation of new telecommunications technology and the introduction of new services as urged by protectionist arguments, the Commission has permitted, indeed encouraged, new entry and the introduction of new services on grounds that competitive market processes and the outcomes they impel (not competition for competition's sake, of course) are inherently quite consistent with and reflective of policies and rules that give rise to the incentives required to advance the public's interest.

Over the span of more than two decades, and in a variety of proceedings addressing very different market contexts, the Commission has spelled out in great detail the basis for what is now its basic competition policy: Competition is the rule and protection of established market positions the exception to be justified. That is the apparent presumption in this proceeding and we have found no basis for making a public policy exception of DARS entry into the national radio market.[22]

IV. B Impact of DARS on the financial viability of radio broadcasters.

In liberalizing entry conditions and promoting competition in markets for which they have regulatory responsibilities, the Commission has recognized the economic stress to incumbents created by new technologies, new market entrants, and the introduction of new competitive services. New entry creates new and better services options for consumers, but it also simultaneously increases competitive pressures on incumbents' revenues, cash flow margins and earnings.

Thus, in proposing to rules to govern the provision of DARS in the radio

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[22] See Comments of Digital Satellite Broadcasting Corporation herewith, page 27..

entertainment and information marketplace, the Commission recognized that:

> "...initiation of satellite DARS may not be without some costs to local broadcasters, particularly in the area of their advertising revenues.... [since] DARS may reduce the audience for terrestrial radio...[which] may in turn reduce the advertising revenues available to local broadcasting... "

Having called attention to the fact that benefits to consumers often are the result of costs to producers, the Commission, accordingly, sought comment on:```

> "...the potential and likelihood of such an impact, and its effect, if any, on the continued financial viability of traditional broadcasting and on the amount of local and public affairs programming that traditional provide."

The specific quantitative impact of DARS on current radio broadcasters will vary from market to market and from one broadcast station to another within a particular market. Some stations are not likely to be effected at all, or to effected only quite marginally. The effects on different stations will depend on downstream developments in the marketplace: including the services finally provided by the new technologies and the extent to which consumers are attracted to them, the cost of services and equipment needed to support the new technology and specific services costs, and the market strategies and tactics of both entrants and incumbents alike. My point here is not to sidestep or try to finesse the Commission's questions, but to caution against accepting blanket and categorical assertions about the size and inevitability of economic or financial harm of any kind resulting from the introduction of new audio services.

Given the current strength and historical resilience of the radio broadcast station sector, several conditions are necessary for the introduction of DARS to have a substantial economic impact on stations; additional conditions are necessary for such impacts to be realized in the allocation of capital goods and in financial terms; and, even more conditions are necessary for the impacts to translate into reductions in programming of a local or community nature.

Contentions about the undesirable effects of DARS on local broadcasters can be grouped into two categories. The first is that DARS competition will lead to "stress" or "harm" or assorted "negative impacts" of a an economic or financial nature, while the second group of bad things is related to the likely loss of socially valuable programming services or, more generally, "harm to localism". Both groups of contentions are difficult to verify or to refute, owing in substantial part to the vague, broadreaching and frequently cataclysmic language frequently used to describe the effects of competition from DARS.[23] It is possible, nevertheless, to sketch out a framework for analyzing such

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[23] Phrases like "would precipitate devastating effects", "would wreak a national cost of enormous proportions", "will end commercial radio as we know it" and the like are frequently tossed about. The presumed bases of these effects, "fragmentation" "siphoning", "stealing listeners" and others are equally

claims.

Consider first the timing of any market or financial effects. Whatever effects DARS may ultimately have in the radio services market place will not be realized for about a decade. Thus, broadcasters have a fairly long lead time and notice to prepare for DARS. There will be almost no impact in the short run and the major market effects are probably at least a decade away. Looking forward from now, there are several important lags that will delay any impact. For simplicity, these can be grouped as factors leading to regulatory lags; operations lags; and consumer adoption lags.

DARS has now been before the Commission for over five years, dating from the original Notice of Inquiry soliciting public views on technical and spectrum issues. If past is prologue, the passage of additional time may be reasonably expected as the Commission fulfills its statutory and administrative obligations to construct rules and regulations consistent with the public interest.

More importantly than further regulatory lag, however, there is much of a business and operational nature that must be done before the service will be introduced and available in even a few segments of the national market. Regulatory uncertainty must be resolved and the rules and regulations to govern the provision of DARS put in place before most of the important elements of rational business plans can be put in place and implemented. Important decisions about hardware and content, as well as day to day operational matters remain to be determined and put in place. Thus, introduction of the service into the marketplace is likely to take several months or years following clearance of the last regulatory and judicial hurdles.

But, even after initial introduction of the service in the marketplace, it will take some considerable additional time for DARS to diffuse and to penetrate the consumer marketplace. Of course, the precise rate at which DARS will be adopted cannot be forecast with any certainty. However, some broad outlines of what might be expected can be drawn by tracing the history of diffusion of past consumer electronics technologies.

The impact of DARS on radio broadcasters depends in the first instance on its success, as measured by consumer acceptance. If the technology is a "bust" there will be no impact on broadcasters. And investors in the technology are well aware of the risk that the market will not "take off" and that the service will simply stall at the starting gate. But, more to the point, under more likely circumstances, even if the technology is successful, it is very likely to be several years -- a decade, or more after the service is introduced -- before any significant economic impact of the new technology will be realized in the marketplace by its providers, customers or competitors.

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vague, slippery and difficult to measure or verify. Thus, the arguments against new competition have not, to date, been put in the context of formal economic models of market behavior, nor the results quantified. Thus, there is not much more in the record than rhetoric to refute.

Several years ago, in the context of trying to determine the rate at which "high definition" or advanced television products might be adopted in the U.S. consumer marketplace, we reviewed the history of "successful" innovations in the domain of consumer electronics. That review revealed a pattern suggesting considerable lags in consumer acceptance and technology diffusion following introduction.

Based on a review of the historic development paths of successful consumer electronics goods -- black and white television, color television, VCRs, television receive only earth stations, home computers, cable television service and audio component systems -- we concluded that the average growth path could reasonably be approximated by the following key characteristics: one per cent household penetration achieved 7-8 years after introduction, 60% compound annual growth for the five years following, and steady, if unspectactular, growth thereafter of 10% per year, driven by product replacements, production cost and price reductions, combined with significant, but unspecified, product improvements.[24]

If DARS develops at roughly the same pace as previous successful consumer electronics technologies, we can reasonably expect that by the year 2005, the technology will be in the the very preliminary stages of market development and will be reaching somewhere in the range of one to five percent of U.S. households.[25]

It is certainly possible that the introduction of DARS will be followed quickly by a dramatic and substantial shift of significant audience shares from commercial radio. DARS backers would certainly welcome instant success, but that result is inconsistent with technology adoption patterns in general; and, more particularly, such a dramatic

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[24] See, Larry F. Darby, "Economic Potential of Advanced Television Products", Report for the U.S. National Telecommunications and Information Administration (Department of Commerce, Washington, DC), p. 33, 1988. We have subsequently confirmed that the diffusion of cellular radio telephone services, fax machines and compact discs fall near to the general pattern; and, that this general pattern is characteristic of broader technoeconomic phenomena described more fully by the so-called "Fisher-Pry" curve of technology diffusion. The Darby ATV Study has been widely critiqued and several alternative product/service scenarios have been constructed, but I have found no substantial basis for altering my original estimates. In the current context, however, I should not that one competent review of all the studies concluded that: "The rapid growth scenario in Darby's Study of the ATV market is probably the most optimistic of the major ATV forecasts (See Owen and Wildman, p. 209).

[25] I have resisted, unsuccessfully, the temptation to conjecture further about the size of the DARS market under this scenario relative to the size of the total radio market in the year 2005. So, imagine that one million households spend $200 per year on DARS in 2005 and radio station revenues grow from 1995 to 2005 at the 7.2 five year (compound annual) growth rate projected by Veronis, Suhler (See Table 2 above). On these assumptions DARS in 2005 would generate $200 M in revenue, while the turnover of the radio broadcasting industry would be approximately double its current level, or in the neighborhood of $21 B or $22 B. Under this scenario DARS would garner sales less than one percent of the level enjoyed by traditional radio broadcasters a decade from now. And, of course those DARS revenues do not necessarily come fully from diversion of revenue from traditional broadcasters, inasmuch as DARS is likely to expand the market somewhat, if not substantially

shift in radio listening audiences would be a sharp departure from expectations based on the history of radio broadcasting and its successful adaptation in the face of numerous new and innovative challenges in the electronic entertainment and information marketplace. The magnitude and speed of technology adoption necessary to create substantial competitive market pressure on radio broadcast stations in the next few years cannot be reasonably inferred from historical market data.[26]

The attitude of capital markets toward DARS is revealed clearly by the actions of radio station investors and the analyses of their advisors. As detailed above, increasing multiples of cash flow paid by investors to acquire station properties bespeak no lack of confidence in the future of the industry, and under no circumstances reflect any investor anticipation of pending dramatic reversals of radio broadcast station fortunes. It bears repeating that investors are forward looking, and investors in radio stations are no exceptions. In their valuations of radio broadcasting stations, acquirors (at least the sensible ones) are considering not only the cost of money to them and their other investment options, but also, the expected growth and associated risk -- including the market risk of DARS and other new technologies.

The escalating valuations being assigned to radio station cash flow are simply not consistent with the prospect that such stations will quickly lose large audiences to DARS following final Commission approval and establishment of the groundrules. Serious investors in radio broadcast station properties, and the financial specialists who advise them, certainly read Commission orders and have a sense of the timing and content the Commission's likely disposition of the DARS applications, as well as the rate at which the technology may develop in the marketplace.[27] In efficient capital

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[26] In this respect, the Commission might find instructive the response of consumers to recently introduced terrestrial, digital audio services. While certainly successful by some measures, these services have not precipitated massive audience shifts, nor, apparently, had any effect at all on the economic and financial strength of traditional radio broadcasters.

[27] It is worthwhile to note the impact of recent regulatory developments at the Commission on station values. Current and prospective values of radio stations have been enhanced in recent years by changes in FCC rules governing radio station ownership. Recent rule changes have increased the number of stations permitted to be held under single ownership from 21 (the old 7-7-7 rule) to 52 stations (20 AM radio, 20 FM radio and 12 television). But, an even more important regulatory development was relaxation of the old "duopoly rule", which permitted only one AM-FM combination in a market. Under more relaxed standards adopted in 1992, the Commission's rules now permit a single owner to have three to six radio licenses per market, with the precise number permitted depending on the size of the market. A single owner can hold no more than half the stations in a small market, nor serve more than 25% of the audience in a large market.

Relaxation of the "duopoly rule" has brought some fundamental and important changes in the economics of broadcast stations. A significant share of the costs of managing a radio station are fixed and invariant with respect to the number of stations under common control. Thus, increasing the number of commonly owned stations does not increase such costs and permits them to be spread over increasing output (number of hours on the air, number of listeners reached, number of programs aired, and so forth). In addition, increasing the number of stations under a single management permits better deals for

markets, like those prevailing in the U.S., there are very few surprises. To conclude that DARS will have a substantial and immediate impact on the financial viability of radio stations would require the Commission to utilize information about the industry not available to professional investors and to substitute its economic and financial judgements for theirs.[28]

To the extent that it eventually enjoys some success in the marketplace, DARS will of course have a economic impact on radio stations and through those market effects, on the wealth of owners of radio broadcast station assets, as well. But, much of the potential effect of DARS in the local radio marketplace can and will be offset by the creative, competitive responses of radio broadcasters, just as they have been so frequently in the past. While it would be presumptuous to set out here precisely what such responses will and should be, there seems to a pretty good blueprint in radio station responses to competitive challenges in the past.

Station managers will respond by attempting to meet the needs, preferences and listening habits of local consumers. They will have an incentive to search for and put in place innovative programming ideas and new formats; they will look for new ways to promote their own stations and the products of supporting advertisers; they will be impelled by market forces to explore the advantages of new networking arrangements; they will accelerate their own quest for an efficient, attractive terrestrial digital audio service with which to enter fully, and compete successfully in, digital markets of the future.[29] And, they have several more years to get ready.

To the extent that radio station managers are not able to adapt completely to DARS competition and sustain continued revenue growth as they have in the past, there will of course be some some financial impact. The nature of such impacts will depend on circumstances largely beyond the Commission's control. As a means of understanding fully the statutory and public interest basis for the Commission's concern

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advertisers and thereby increases the revenue yield per station. These economies of scale and scope, combined with the revenue benefits of pursuing complementary programming strategies lead to substantially improved operating margins for station operators who exploit the opportunities availed by the relaxed duopoly rules and increase their station holdings in a particular market.

[28] The signal from capital markets to regulators is, "Don't worrry about economic harm to broadcast stations from DARS technology, we're not." In the course of surveying different analysts' views bearing on the principal conclusions of this paper, I have not found a single reference from the financial community sounding the alarm about, and counseling action to offset, the likely damage to the radio industry's future from DARS.

[29] If radio broadcasters respond in the same way that other firms subject to FCC regulation have responded to new, or intensified, competition, they will also look to become more efficient in their own day-to-day operations, as a means of remaining competitive in the market for advertisers and for shoring up cash flow margins in anticipation of competitive pressure on revenues.

for financial impacts, and the Commission's obligation to consider such impacts in this proceeding, it is important to make very clear the nature of any prospective financial harms and the identity of the winners and losers.

Radio broadcasting is not a capital intensive business in the usual sense. Unlike, say, telephony or cable television or satellite communications, large amounts of physical capital (plant and equipment) are not required for the successful operation of the business. The cost of meeting requirements for land, buildings, towers and equipment by a radio station operator, while by no means inconsequential, are modest by the standards of most communications businesses.

This is not, however, to say that capital costs and associated financial burdens are necessarily inconsequential. To the contrary, substantial capital costs -- primarily debt service costs -- have been generated for some stations as the result of previous financial transactions. These capital costs are the consequences of station(s) acquisition transactions and reflect the capitalization by acquirors of expected future earnings, cash flow and potential station resale values. Thus, for many multiple station owners, total capital and financing costs -- defined to include not just the cost of initially financing, carrying and depreciating physical plant and equipment, but also the annual amortization of acquisition premiums and interest charges on associated debt -- may be, and are, quite a significant portion of overall station costs.[30]

Failure of revenues to cover debt service costs incurred as a result of finance acquisition premia for radio broadcast stations will not necessarily lead to a withdrawal of the station's real capital resources from production. That is, financial distress does not necessarily, or even generally, result in a discontinuance of production. The cost of indebtedness incurred to pay acquisition premia do not reflect costs to society of making radio services available, inasmuch as if revenues fail to cover them, production will not be discontinued. The result of a revenue shortfall will be a downward valuation of the assets -- write-offs, if you will -- with production continuing, albeit at lower nominal

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[30] Such capital costs are not incurred by station owners and operators who have not acquired facilities in that way; who have not paid such premia; and, who have not incurred debt to underwrite such acquisitions. Thus, some owner/operators (who are original license holders), with the same operating margins as their colleagues who paid large acquisition premia, will realize those margins as profits or earnings, while their colleagues must recognize them as debt-related costs. In view of its importance to the Commission's consideration of the potential financial impact on radio broadcasters of DARS, this point warrants some elaboration and clear understanding. Consider two hypothetical stations with identical programming, audiences, revenues, operating costs and operating margins -- everthing the same except they have different capital structures (ratios of debt to equity). In an accounting sense one station (the one with little indebtedness) may well be might be quite profitable and generating healthy surpluses for its owners, while the other (the one with substantial indebtedness and debt service costs) is losing money. One station may be able to sustain quite substantial hits to revenue, as a result consumers choosing other technology based services, and still remain profitable, while the other will show increasing losses. While seemingly ironic on its face, this circumstance should raise no clear dilemma for the Commission. The Commission has no clearcut statutory responsibility to protect the financial values of radio licenses acquired in anticipation of further financial gains with full knowledge of the technological and market risk involved

capital costs.[31]

Thus, the precise nature of the financial costs being discussed is critical to the the Commission's evaluation of comments about the financial effects of DARS. The Commission should distinguish carefully between policies and rules required to keep risk-taking investors whole versus those required to ensure that "real" capital costs, necessary to renew and modernize current broadcast plant and equipment, are covered. Only the latter is required to ensure that diverse, high-quality radio services will continue, as in the past, to be made available in the local market place.

IV.C Impact of DARS on Specific Statutory Objectives of Radio Regulation.

The Commission has historically placed a high a priority on policies that will contribute toward assuring continuation of radio programming of a "local" or "community" nature. Accordingly, the Commission has solicited public comment on the effect of DARS may have on each of these specific public interest concerns.

Notwithstanding the overwhelming evidence that open entry and increased market competition generally serve the public interest, the Commission has also recognized that competitive pressures to regulated entities previously shielded from unlimited entry might have some unwanted side effects -- in particular, increases in cost or reduction in availability of certain classes of service in particular geographical areas.[32] The Commission has recognized such concerns in other regulatory arenas. Competitive policies in the common carrier area have been developed in ways consistent with the requirements of universal service, i.e., service to sparsely populated areas and for those whose well being (the poor, the elderly and others) traditionally warrants special attention in regulatory processes. Thus, the Commission and its staff has considerable experience and knowledge about how best to analyze contentions of incumbents about the adverse impacts of competition on particular classes of service.

In evaluating studies and analyses purporting to prove economic harm generally

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[31] It is very difficult to destroy, in a financial sense, an ongoing concern and to take it out of production. In principle, station advertising revenues need not cover all financial costs, including those incurred in anticipation of further appreciation in the market value of scarce radio broadcasting licenses, to ensure that production will be sustained in the long run. All that is needed, again in principle, is for revenues to cover operating costs, plus interest charges and depreciation on the original plant and equipment, plus a "normal" profit reflecting relevant opportunity costs. Under those circumstances, sufficient incentives exist in a market economy to ensure that the plant will be renewed (replaced as it wears out, modernized (replaced as it becomes obsolete) and production continued.

[32] Thus, the Commission has been encouraged to adopt the view that DARS will "siphon", "fragment", "steal" or otherwise divert listeners from services that generate positive earnings or cash flows, and thereby strip stations of their ability to continue providing "local" or "community" or "public information" or other services of a "public" nature.

and to establish the probability of substantial reduction in "local" or "community" programming resulting from the entry of DARS, the Commission needs only to require application to radio broadcast markets of the tools and methods used in the common carrier area to test the veracity of claims that competition will undercut valuable social cross-subsidies that permit users to receive services at less than costs.

The potential effect of DARS on local broadcast station managers' choices of programming can be evaluated by considering the local broadcast station as a multiservice firm facing competition from several other multiservice firms producing substitutable, but highly differentiated services.[33] It will not be simple for opponents to meet the burden of establishing the probability and extent to which DARS competition will lead to a substantial loss of local or community programming.

The Commission has clearly spelled out the kinds of analysis it will require of DARS opponents, and we look forward to reviewing those studies.[34] If indeed it is available, the radio broadcast industry alone has the data necessary and access to managers who can assist in providing insights and information about the relationship between the marginal costs of providing various kinds of radio programming (including programming of a "local" or "public" or "community" nature) and the advertising revenue (audiences) generated by specific programs. Without revenue and cost estimates broken out and allocated on a service by service basis, it is impossible to refute claims that DARS will divert revenue from "profitable" services that is used to subsidize "unprofitable", but socially desirable, services and thereby result in the latters' reduction, degradation or elimination.

We have searched diligently for evidence relevant to a showing that DARS will

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[33] The economic theory of program choice by a broadcaster has been developed rather extensively, but not in directions fully suited to determining the impact on program choice of new competition in radio. The analysis available is largely in the context of television markets and generally does not address "cross-subsidy" type questions. The most comprehensive summary of the issue with which we are familiar is presented by Owen and Wildman, Video Economics, chapter 3 (Traditional Models of Program Choice) and chapter 4 (Modern Models of Program Choice), pp. 64-150. Notwithstanding their completeness relative to other summaries of the literature, the chapters are not fully satisfactory for present purposes, owing to their principal focus on television and the fact that the literature apparently contains little, if any, analysis that specifically addresses the questions posed here -- namely, the profitability or cash flow margins of different radio programs or services.

The "pragmatic" literature on the matter of radio programming is not fully satisfactory in this regard either. While there are numerous books, articles, monographs and assorted other writings on the general topic of radio programming, we have not been able, after a pretty diligent search, to identify any modestly complete and rigorous analyses of the programming choices made by a profits conscious station manager. For an excellent survey of the teachings in the field, but one which is nonetheless not very helpful here, see, Susan Tyler Eastman, Broadcast/Cable Programming -- Strategies and Practices, Fourth Edition, Wadsworth Publishing Company, Belmont, CA (1993) especially Part IV, "Commercial Broadcast Radio Programming Strategies", including chapters covering network and syndicated programming; music radio programming; and information radio programming.

[34] The Commission has spelled out these requirements in paras. 13-20 of the NPRM.

lead to a reduction in socially valuable programming so that we might begin to evaluate the claims of DARS opponents. We have found no formal analyses of the proposition; no empirical indications from experience in other industries to support the proposition; and no data of the kind required to verify or refute such claims. There is no evidence, beyond the unsupported claims and conjectures by radio broadcasting station interests.

Pending development of more specific studies by these interests, as directed by the Commission, we can only point out some indirect and, perhaps, inconclusive indications of the potential impact of DARS on "local" programming. In particular, it is important to note the very substantial resilience and adaptability of radio broadcasters to past technological and market changes; that similar contentions in other industries have not generaly been confirmed; that television broadcasters sounded the same (false) alarms over the prospect of cable television; that AM stations in small market and some other large segments of current "local" or "public" programming will not be impacted at all by DARS; that some programming of a local nature is apparently "profitable" inasmuch as stations specialize in such programming and remain viable over time; and, very importantly, that the operation of competitive market forces may well be to force radio broadcasters to specialize in, and develop further, program formats in which they have a comparative advantage -- namely, programming of a "local" or "public" nature. The latter possibility is especially important, for it implies that DARS will create incentives for incumbents to provide more and better programming of the kind valued by the Commission.

V. Conclusions

We are hard pressed to improve on the following conclusion from one of the premier financial analysts of the broadcasting industry.

> "It [broadcast radio] has more than weathered the rise of several other communications and entertainment fields, notably motion pictures, television and cable. And, the airwaves appear as robust as ever in this new era of satellite and interactive. Against all contenders for media consumption radio's success is simple -- it's local, mobile, flexible and immediate."[35]

Radio is a remarkable industry. It is amazing that an industry, fully mature after three quarters of century, has so successfully maintained its market vigor and financial vitality in the face of such technological turbulence as has marked its path. Radio has had some "poorer" times than the present, temporarily provoked by general economic recession, and its growth has been temporarily, and modestly, slowed by the advent of television. But, its innate creativity as a medium of entertainment and information, and the imagination of generations of radio managers have kept it on a steady, healthy long

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[35] PKA, Radio Station Deals, p. 1

term growth path. It is more than holding its own in extremely competitive capital markets, and is outperforming many of the high-flying, high-tech, glamour stocks of the 1990s. The industry has proved that it can stand on its own and that it will survive and grow. There is no basis for protecting it from the relentless surge of new technology; or, for stripping consumers of new entertainment and information services options.